Copy 1 of 3

Illinois Environmental Protection Agency

Bureau of Water - Division of Public Water Supplies
Inspection Report - Elgin Regional Office

1E/11
Exhibit MLJ-7

FACILITY NAME	Wonder Lake Water Company	FACILITY NUMBER	111-5750
PLANT PHONE	1-815-653-2961	COUNTY	McHenry
INSPECTION DATE	May 30, 2000	INSPECTED BY:	Chris Johnston and Manny Abad

SEND CORRESPONDENCE TO		EXEMPTION / LABORATORY FEE STATUS	
NAME OR ENTITY	Mr. Thomas P. Mathews	CHLORINE (Date)	Not exempt.
ADDRESS	7314 Hancock Drive	CERTIFIED OPERATOR (Date)	Not exempt.
CITY, STATE, ZIP	Wonder Lake, Illinois 60097	LAB FEE PARTICIPANT (Y/N)	No

CONTACT INFORMATION

CERTIFIED OPERATOR	Mr. Thomas P. Mathews	CLASS	"C"	NUMBER	00956
PHONE:	1-815-653-2961	FAX:	1-815-653-2081		
PORTABLE PHONE:	1-815-482-1401	OTHER:	Home: 1-815-653-7171		
OWNER - RESPONSIBLE PERSONNEL	Mr. Thomas P. Mathews	TITLE OR POSITION	President		
PHONE:	1-815-653-2961	FAX:	1-815-653-2081		

OTHER CONTACTS	NAME	TITLE OR POSITION	PHONE
	Mr. Jeff Claus	Vice President	1-815-653-2961
	Mrs. Evelyn Raske	Office Manager	1-815-653-2961
HOME PAGE ADDRESS	None.		

FACILITY STATUS

Open		Critical Review		Restricted Status	X	Reason	Inadequate hydropneumatic storage capacity	Date	06/16/1994

ADEQUACY OF SUPPLY - COMBINED INVENTORIES OF WONDER LAKE AND HIGHLAND SHORES (111-5300)

DATE RANGE	FROM	Jan. 99	TO	Dec. 99	PLANT CAPACITY (MGD)	0.7056 MGD
					LIMITING FACTOR FOR PLANT CAPACITY?	Combined capacities of well #1, well #3, and Wonder Lake (111-5750) well # 1
ANNUAL PUMPAGE (MG)	RAW		?		FINISHED	78.15235 MG
AVERAGE DAILY (MGD)	RAW		?		FINISHED	0.214235 MGD
MAX 7 Day Average (MGD)	RAW		?		FINISHED	0.356829 MGD
Historical MAX 7-Day Average (MGD)	RAW		?		FINISHED	0.356829 MGD
POPULATION	HS: 2,244 WL: 1,442 Total: 3,686				Estimated or Census Data	Estimated
					How was Estimated Population Figured?	3.5 people per connection
AVERAGE DAILY PER CAPITA USAGE:	58 gpppd (low)				Time to Produce Average Daily (Finished)	7.3 hours
					Time to Produce MAX 7- Day Average (Finished)	12.1 hours

SERVICE CONNECTIONS		# METERS	
NUMBER OF DIRECT SERVICES	412	412	
DIRECT SERVICES OUTSIDE CORPORATE LIMITS	0	0	
Residential Customers	412	412	
Commercial Customers	0	0	
Industrial Customers	0	0	
SATELLITE WATER SYSTEMS / INTERCONNECTIONS	**FACILITY NUMBER**	**Source?**	**Customer?**
Highland Shores Water Company (TAP 04)	111-5300	X	X

BRIEF DESCRIPTION OF SYSTEM AND SERVICE AREA

The Wonder Lake Water Company (111-5750) is located in north-central McHenry County, on the southwest side of Wonder Lake. The Public Water Supply consists of one shallow well, one open interconnection with the Highland Shores Water Company (111-5300), and one pressure system. The facility has two active TAP's (TAP's 01 and 02).

TAP 01 receives water from well #1. Well #1 (ID 20149, rated 210 gpm @ unknown head) was drilled to a depth of 180 feet, tapping a sand and gravel aquifer. The raw water is treated with polyphosphate (WSU 319 diluted 50%) for iron and manganese sequestration, supplementally fluoridated with hydrofluosilicic acid (23% diluted to a 2.3% solution), and disinfected with sodium hypochlorite (12.5% diluted 50%), before passing to the distribution system. At the time of inspection, the fluoride feed was disconnected. Well #1 has an iron concentration of 0.05 mg/L (although on 10/28/1999 the raw water had an iron concentration of 1.04 mg/L), a manganese concentration of 0.12 mg/L, a hardness concentration of 329 mg/L as $CaCO^3$, and a natural fluoride concentration of 0.22 mg/L. TAP 01 supplements the production of TAP 02. Well #1 has a history of colony growth which has generated invalid samples and total coliform detections.

TAP 02 consist a connection to the Highland Shores Water Company (111-5300) through a 6-inch main (the 6-inch main connects to a Highland Shores 4-inch main). The capacity of this connection is unknown. Water has the capability to either flow into the Highland Shores water system, or to the Wonder Lake Water Company; however, the Highland Shores Water Company is located at a higher elevation and under normal operating conditions all water flows from Highland Shores and to Wonder Lake. Due to the open connection, the Highland Shores Water Company and the Wonder Lake Water Company can be considered one water system. Source water for the Highland Shores Water Company consists of two wells with a combined capacity of 280 gpm. Storage for Highland Shores consists of a 45,000 gallon elevated tank. A 14,000 gallon hydropneumatic tank also exists, but no air charge is maintained in the tank (he tank is considered "in-line" storage). Reported disagreement among the residents of the two systems has kept the supplies separate.

The supply has had a history of late sample results, not maintaining proper fluoride residuals, and numerous complaints for not issuing boil-orders, water shut-offs without notice, rusty water, black water, and water with strange odors, and low pressure. The facility is under enforcement, and is on restricted status for inadequate hydropneumatic storage capacity. Storage consists of a 10,000 gallon hydropneumatic tank and a 6,000 gallon hydropneumatic tank. No air charge is maintained in either tank; the tanks are considered "in-line" storage. The distribution system consists of 24,614 of 4-inch and 5,990 feet of 6-inch diameter transite (asbestos cement) main. There is a reported 60 feet of elevation difference between the high and low points of the distribution system. Hydrant tests by the ICC show flow pressures below 20 psi at some locations. The supply has "flush valves," or gate valves which when opened discharge water directly below ground (the main behind the valve is not capped). No dedicated emergency power is provided for the supply, and the facility does not have any system alarms. The community is served by septic systems. A letter from November 1989 states a furniture stripping business on East Wonder Lake Road was using "methylene chloride" to strip furniture. Supposedly, a former cement pit was utilized to dip the furniture in, and the waste solvent went into a dry well. The facility does not have a history of VOC detections. In the early 1980's the area had a Campylobacter outbreak. At the same time, a water main break occurred at the facility. A direct correlation between the outbreak and the water main break could not be established. A free chlorine residual of 0.1 mg/L was measured in the distribution system on the day of inspection.

TREATMENT APPLICATION POINT SUMMARY

TAP #	Location or Description	Source Name	Source ID	Status (A, I or X)	Well Depth	Casing Length	Aquifer	Current Production (GPM)	GWUDI Eval. (DATE)	Waivers	
										VOC	SOC
01	Well #1, 14,000 gallon and 6,000 gallon hydro-pneumatic tanks at 8519 Alden Road.	Well #1	20149	A	180 feet	170 feet	Sand & Gravel	210 gpm @ unknown head and 20 Hp	Never submitted information	Expires 12-31-2001	Expires 12-31-2001

Source Use (Disconnected sources, backups, seasonal use, etc)	Supplements the production of TAP 02.
Bacteriological History (Raw water samples)	One total coliform detection in the last 12 months. The supply utilizes membrane filter for testing. Well #1 and the distribution system have a history of colony growth which has generated invalid samples and total coliform detections.

Disinfectant Used	Fluoridation Chemical Used	Other Chemical Addition	Well Inorganic Statistics:
Sodium hypochlorite (12.5% diluted 50%)	Hydrofluosilicic acid (23% diluted to a 2.3% solution)	Polyphosphate (WSU 319 diluted 50%)	Manganese conc.: 0.12 mg/L Hardness as $CaCO_3$: 329 mg/L pH: 7.7 Natural Fluoride conc.: 0.22 mg/L Iron conc.: 0.05 Mg/L - on 10/28/1999 the raw water had an iron concentration of 1.04 mg/L).

Installation Deficiencies	General Condition of Plant
TREATMENT 1. The finished water tap for well #1 is not located far enough downstream for accurate readings, well #1 does not have a master meter, well #1 does not have a pressure gauge, the casing vent for well #1 is not downturned, well #1 does not have provisions to measure water levels, and the annular opening at the top of the casing (where wires enter well #1) is not tightly sealed. 2. The fluoride, phosphate, and chlorine day tanks do not have protective curbings nor containment. 3. The 10,000 gallon hydropneumatic tank is below grade and does not have a sight glass. 4. The 6,000 gallon hydropneumatic tank is below grade, does not have a drain, does not have a pressure gauge, does not have a water sight glass, does not have a manual or automatic air blow-off, does not have bypass piping, and does not have a means for adding air. 5. No dedicated auxiliary power. 6. The phosphate solution may not have a 10 mg/L free chlorine residual. 7. The chlorine and phosphate injection points are at a dead-end.	Fair.

Other Comments regarding this TAP	The supply has had numerous red and black water complaints, which indicates the polyphosphate treatment is inadequate, the current flushing program is inadequate, or both are inadequate.	**Emergency Power**	None dedicated. The supply reportedly has portable generators, but no system alarms.

TREATMENT APPLICATION POINT SUMMARY

TAP #	Location or Description	Source Name	Source ID	Status (A, I or X)	Well Depth	Casing Length	Aquifer	Current Production (GPM)	GWUDI Eval. (DATE)	Waivers	
										VOC	SOC
02	Connection to the Highland Shores Water Company at 3513 Westwood Drive	*Well #1	00595	A	265 feet	255 feet	Sand & gravel	170 gpm @ unknown head and 20 Hp	Never submitted information	Not received	Not received
		*Well #3	20152	A	220 feet	210 feet	Sand & Gravel	110 gpm @ unknown head and 10 Hp	Never submitted information	Not received	Not received

Source Use (Disconnected sources, backups, seasonal use, etc)	*Due to elevation differences, under normal circumstances, water flows from Highland Shores and to Wonder Lake. Thus the above two wells are the main source of water for the supply.
Bacteriological History (Raw water samples)	Facility is not required to sample at this location.

TREATMENT

Disinfectant Used	Fluoridation Chemical Used	Other Chemical Addition	Other Treatment
None.	None.	None.	None.

Installation Deficiencies	General Condition of Plant
None - underground connection.	Underground connection.

Other Comments regarding this TAP	TAP 02 consist a connection to the Highland Shores Water Company (111-5300) through a 6-inch main (the 6-inch main connects to a Highland Shores 4-inch main). The capacity of this connection is unknown. Water has the capability to either flow into the Highland Shores water system, or to the Wonder Lake Water Company; however, the Highland Shores Water Company is located at a higher elevation and under normal operating conditions all water flows from Highland Shores and to Wonder Lake.	**Emergency Power**	None.

Service Area / Pressure Zone / Distribution System											
Water Source(s)	TAP 01 and TAP 02										
Location or Description		Service Area Population	No. of Service Connections	Finished Water Storage (Show Capacities)							
				Ground	Elevated	Hydropneumatic					
Entire Wonder Lake Distribution system		1,442	412	None	*None	**10,000 gallons					
				---	---	**6,000 gallons					
Maximum System Pressure	Location	Minimum System Pressure	Location	Free Chlorine Residual (mg/l)	Location						
75 psi	West Lakeshore Drive and Dorr Rd.	56 psi	Thompson and Acorn Ave.	0.1 mg/L	Distribution system						
Flushing Program				Fire Protection Provided?		Current Map Available?		Valve Maintenance Program			Notes and Other Observations
None	Yearly	2 x year	More Often	No	Yes	No	Yes	No Valves	No Program	OK	
			Monthly	X			X			X	*The supply has an open connection with the Highland Shores Water Company. Water can flow to either supply based on demand. **No air charge is maintained in either tank; the tanks are considered "in-line" storage. The supply has had numerous red and black water complaints, which indicates the polyphosphate treatment is inadequate, the current flushing program is inadequate, or both are inadequate. The distribution system consists of 24,614 of 4-inch and 5,990 feet of 6-inch diameter transite (asbestos cement) main. There is a reported 60 feet of elevation difference between the high and low points of the distribution system.

Hydrant locations with flow pressure below 20 psi - ICC Hydrant Inspection Report for October 1998				
Hydrant Number	Location	Static Pressure	Flow Pressure	Gallons per minute
18	West Lake Shore Drive & Acorn	83 psi	15 psi	630 gpm
17	Westwood Drive & Coral Rd.	68 psi	15 psi	630 gpm
16	Near Ridge Rd. & Acorn Path	57 psi	12 psi	630 gpm
15	Between Adlen & Coral on Greenwood Drive	87 psi	15 psi	580 gpm
14	Between Alden & Dorr on Woodstock St.	92 psi	17 psi	770 gpm
10	Between Burton & Dorr on Greenwood Drive	87 psi	12 psi	730 gpm
9	West Lake Shore Dr. & Nunda Rd.	95 psi	15 psi	730 gpm
6	Riley Road	88 psi	17 psi	760 gpm
4	Between Garrison Rd. & Greenwood Dr. on West Lake Shore Dr.	92 psi	16 psi	630 gpm

Operating Reports / Records

Monthly Reports Being Submitted?			Content of Monthly Reports								Notes and Other Observations
			Report for each TAP?		Daily Production from Each Well?		Daily Measured Residuals?		Daily Dosage Calculations?		
Yes	No	Late	Yes	No	Yes	No	Yes	No	Yes	No	
		*X	X		X		X		X		*Daily operating reports are sent one time per year.

Cross Connection control Ordinance						
Does the system have an ordinance?		Date Approved (by IEPA)	Program Enforced?		Do Private Wells Exist in the Service Area?	
Yes	No		Yes	No	Yes	No
X		11/18/1994	X			X

Monitoring

Bacteriological Summary

Monitoring History (Last 12 Months)				Primary Lab	Phone	FAX	
	Raw	Finished	Distribution				
Number of Samples	13	0	30	McHenry Analytical	1-815-344-4044	1-815-344-2208	
Number Satisfactory	12	0	29	Secondary Lab	Phone	FAX	
Number Invalid	0	0	0				
Number Unsatisfactory	1	0	1	None	N/A	N/A	
Fecal / E. Coli. Positive	Total Coliform	0	Total Coliform	Coliform Monitoring Plan Approved?		All Major Portions of system included in Plan?	
				Yes	No	Yes	No
Monitoring Violations	0	MCL Violations	0	X		X	

Chlorine Residuals taken at Sample Sites?		Monitoring FREE Residual?	
Yes	No	Yes	No
X		X	X

Fluoridation Summary (Last 12 months)

TAP No	No. of Samples	Minimum (mg/l)	Maximum (mg/l)	Average	Violations (list months)	Notes and Observations (Fluoridation)
01	12	0.6 mg/L	1.28 mg/L	0.89 mg/L	October 1999, September 1999, July 1999, May 1999	The supply has had a history of not being able to maintain the fluoride dose in the required range. The lab versus operator test results show an average discrepancy of 0.3 mg/L.
02	N/A	N/A	N/A	N/A	N/A	Highland Shores (111-5300) receiving point.

Viability / Financial Management

Service Fee (Minimum Charge)	$6.00 a month	Other source(s) of income used to maintain the water system	None
Direct Charge (cost per 1,000 gallons)	$1.41	How does the utility handle customers who fail to pay water bills?	Overdue notice, final notice, home visit to collect, turn off service
Billing Frequency	Bi-monthly	Does the utility have a fund to cover major repairs?	No
ICC Regulated? (Y/N)	Yes	Name and phone no. of person responsible for system repairs:	Mr. T.P. Mathews 1-815-653-2961
Date of Last Rate Increase	June 1999		

PWS Basic Facility Characteristics Change Form

Facility Number: **111-5750** Facility Name: **Wonder Lake Water Company**
Effective Date: **ASAP**

Current Record		Change To
	No. of Service Connections	412
	Population Served*	1,442
	Coliform Samples (RAW)	1 (Well #1 - ID 20149)
	Coliform Samples (FINISHED)	0
	Coliform Samples (Distribution)	2
	No. of Fluoride Bottles to be sent☆	None
	List TAP No(s) to be monitored for Fluoride	TAP 01
	No. of Coliform Bottles to be Sent	3
	Bottle Recipient Address	Wonder Lake Water Company P.O. Box 189 7314 Hancock Drive Wonder Lake, IL 60097

* Basis of Population and/or Service Connection Change (i.e., 100 homes X 3 People):

☆ Complete only if Participant in Lab Fee program and Supply Requests use of IEPA laboratory for analysis.
❀ Address must be useable for both US Mail and UPS delivery. If Necessary, List Both.

DATE: June 16, 2000 IEPA Personnel: Chris Johnston and Manny Abad

Mail completed form to Marilyn Turner, IEPA/BOW/CAS/#19, Springfield, IL 62794-9276

FYI - Answers to Commonly Asked Questions

The number of distribution samples required is determined by the population served by the water system (**35 IL. Adm. Code 611, Table A**). Additional distribution samples may be required by IEPA to accommodate separate distribution systems.

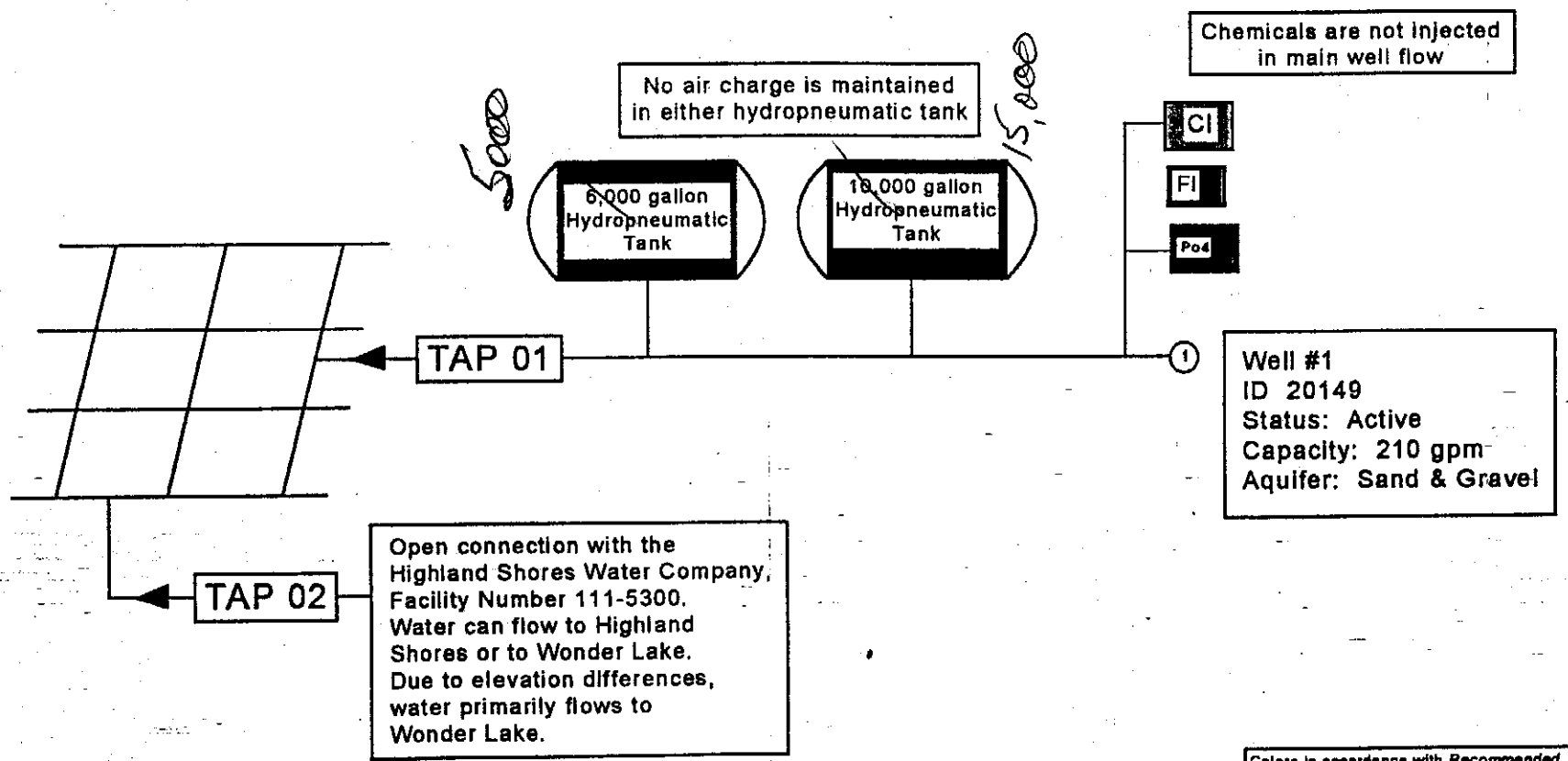
Raw samples are required for systems that add a disinfectant, since problems with the wells or treatment processes may not be detected by distribution samples.

Backup wells that are not in routine use should be monitored quarterly. If an unmonitored well must be used, a boil order must be issued.

Water samples that are **invalidated** by the laboratory cannot be used for compliance. Invalid water samples must be replaced to avoid a monitoring violation.

REPEAT sampling must be provided for ALL distribution samples found to contain coliform bacteria. Repeat sampling consists of three additional samples. One of the three samples should be taken from the location giving the original positive result. A second sample must be collected from an UPSTREAM location that is within 5 service connections, and the third sample taken from a DOWNSTREAM location, that is also within 5 service connections of the original sample point. If repeat samples are not collected, IEPA must "credit" the water system with three additional positive results.

Wonder Lake Water Company
McHenry County - 111-5750



Colors in accordance with *Recommended Standards for Water Works*, Section 2.14

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